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| Reference | Application No./Patent No. |
| P020194EP SRD V | 04252689.7 - 1243 / 1480124 |

| Applicant/Proprietor |
| SUN MICROSYSTEMS, INC. |

Summons to attend oral proceedings pursuant to Rule 115(1) EPC

You are hereby summoned to attend oral proceedings arranged in connection with the above-mentioned European patent application.

The matters to be discussed are set out in the communication accompanying this summons (EPO Form 2906).

The oral proceedings, which will not be public, will take place before the Examining Division.

on 03.09.08 at 10.00 hrs, EPO Rijswijk
Patentlaan 3-9, NL-2288 EE Rijswijk (ZH)

No changes to the date of the oral proceedings can be made, except on serious grounds (see OJ EPO 10/2000, 456).
If you do not appear as summoned, the oral proceedings may continue without you (R. 115(2) EPC).
Your attention is drawn to Rule 4 EPC, regarding the language of the oral proceedings, and to the OJ EPO 9/1991, 489, concerning the filing of authorisations for company employees and lawyers acting as representatives before the EPO.

The final date for making written submissions and/or amendments (R. 116 EPC), is 01.08.08.

The actual room number will be given to you by the porter in the foyer at the above EPO address. A waiting room (S00C06) will be available (tel.: 9105, fax: 9110).

Parking is available free of charge in the underground car park (see map enclosed).

1st Examiner:
Dieben M

2nd Member:
Wierzejewski P

Chairman:
Cohen B

For the Examining Division

Annexes:
Confirmation of receipt (Form 2936)
Communication (EPO Form 2906)

The examination is being carried out on the **following application documents:**

Description, Pages

3-16	as originally filed			
1, 2, 2a	received on	08.01.2007	with letter of	04.01.2007

Claims, Numbers

1-23	received on	08.01.2007	with letter of	04.01.2007

Drawings, Sheets

1/5-5/5	as originally filed

The matters to be discussed are the following:

1   The following document has been referred to:

   D1:   US 2002/156824, 24 October 2002

2   The amendment *wherein enforcement of boundaries between the non-global operating system partitions is carried out by the operating system* in claim 1 goes beyond the content of the application as originally filed. Figure 1 distinguishes amongst others an operating system environment 100, a global zone 130 and a kernel 150. None of these terms are equivalent with the term *operating system*. Moreover, the passage of description indicated in the letter of reply, e.g. page 4, lines 24-27 describe that the enforcement of the zone boundaries is carried out by the kernel 150. Hence, there is no support for the amendment (Article 123(2) EPC).

   The present application does not meet the requirements of Article 52(1) EPC, because the subject-matter of claims 1-5, 7-10, 12-18 and 20-23 is not new in the sense of Article 54 EPC.

3.1 The subject-matter of independent claim 1 is not new as D1 (referred to within brackets of this paragraph) discloses:
   A method performed by an operating system and comprising:
   establishing, within a global operating system environment provided by an operating

system (D1, §0034, "PLIC" & §0037, "the primary partition contains a special portion of hypervisor code which shares the level of OS kernel"), *a plurality of non-global operating system partitions which serve to isolate processes running within one non-global partition from other non-global operating system partitions* **within** *the global operating system environment* (D1, §0034, "PLIC / hypervisor enforces logical partitioning");

...

associating the particular non-global operating system partition with a first resource pool (D1, §0012, "a processor pool may be assigned to a single partition") *comprising one or more resources* (D1, §0012, "processor sets"); *and*
ensuring that processes running within the particular non-global operating system partition are allowed to utilize only the resources in the first resource pool (D1, §0023 "Each ... task ... executes in the partition, meaning that it can use only the system resources assigned to that partition, and not resources assigned to other partitions).

Claim 1 further defines:
wherein enforcement of boundaries between the non-global operating system partitions is carried out by the **operating system** whereas D1 discloses that boundaries between the OS partitions 204a..204d are enforced by the hypervisor. (D1 §0034, "there is no direct path between higher levels (levels above the hypervisor 202) and hardware level 201").

However, according to page 4, lines 24-27 of the description it is not the operating system but a part of the operating system environment, namely the kernel that enforces the boundaries between the non-global zones (See also §2 of the summons). In D1, a part of the operating system environment, namely the hypervisor enforces the boundaries between the operating system partitions 204a .. 204d.

The names 'kernel' and 'hypervisor' are mere labels of the same, not implying any technical difference. Hence, the subject-matter of claim 1 is not new.

Moreover, even if argued that the functionality is distributed slightly different over a collection of software layers, it is pointed out that it is a choice of design obvious to the person skilled in the art to implement a distribution of software functionality over a

collection of layers that supports its contextual requirements. Essential to the alleged invention is, that the layer that provides access to the hardware is the one close(st) to the hardware and capable of enforcing multiple zones. This is disclosed in D1.

3.2 The subject-matter of dependent claim 2 is not new as D1 discloses:
wherein the first resource pool comprises one or more processors (D1, §0012, "processor sets are referred to as pools")

3.3 The subject-matter of dependent claim 3 is not new as D1 discloses:
wherein ensuring comprises: assigning work from processes running within the particular non-global operating system partition to only the one or more processors in the first resource pool (D1, §0011, "Each logical partition is constrained to execute in an assigned processor set")

3.4 The subject-matter of dependent claim 4 is not new as D1 discloses:
wherein the first resource pool comprises an indication of a maximum amount of memory that can be consumed (D1, §0034, "hypervisor also enforces partitioning of other resources, such as allocations of memory ...").

3.5 The subject-matter of dependent claim 5 is not new as D1 discloses:
receiving a memory allocation request (D1, implicit)
determining wether maximum amount of memory is exceeded ...(D1, §0034, "hypervisor also enforces partitioning of other resources, such as allocations of memory ...")
granting the memory allocation request (D1, implicit)

3.6 The subject-matter of dependent claim 7 is not new as D1 discloses:
wherein the resources in the first resource pool are a subset of the total set of resources available on the computer system (D1, §0023, "dividing a single large computer system into multiple partitions ...", Figure 3)

3.7 The subject-matter of dependent claim 8 is not new as D1 discloses:
wherein ensuring comprises: associating each process running within the particular non-global operating system partition with the first resource pool (D1, §0011, "Each

logical partition is constrained to execute in an assigned processor set")

3.8 The additional subject-matter of dependent claim 9 is not new as D1 discloses: *associating the particular non-global operating system partition with the second resource pool instead of the first resource pool* (D1, §0025, "re-assign resources to different partitions")

3.9 The subject-matter of dependent claim 10 is not new as D1 discloses: *wherein ensuring comprises: associating each process running within the particular non-global operating system partition with the second resource pool* (D1, §0011, "Each logical partition is constrained to execute in an assigned processor set")

3.10 The additional (over claim 1) subject-matter of independent claim 12 is not new as D1 further discloses: *a computer program* (D1, §0065)

3.11 The subject-matter of apparatus claims 13-17 and 19-22 is not new. The objections made to corresponding method claims 1-5 and 7-10 apply mutatis mutandis to said apparatus claims.

4 To the extent that the application can be understood, the present application does not meet the requirements of Article 52(1) EPC, because the subject-matter of claims 6, 11, 18 and 23 does not involve an inventive step in the sense of Article 56 EPC.

4.1 The subject-matter of dependent claim 6 differs from D1 in that claim 6 further defines: *deallocating sufficient memory from one or more other processes to enable the memory allocation request to be granted without causing the maximum amount of memory that can be consumed to be exceeded;* However deallocation of memory for these reasons is a common measure in the field of memory management. The person skilled in the art would include a step of deallocation of memory when memory is not an unlimited resource.

4.2 The subject-matter of dependent claim 11 differs from D1 in that claim 11 further

defines:

receiving, from a particular process running within the particular non-global operating system partition, a request for information pertaining to all resources
providing, to the particular process, information pertaining only to the one or more resources in the first resource pool, even though the computer system comprises other resources.

It is noted that in the light of the description (Description, page 11, lines 15-24, "*When a process 170(a) submits a request to the kernel 150 to obtain information pertaining to the resources available to zone 140(a)*"), a request for information pertaining to all resources is interpreted as *a request pertaining all resources of its own non-global partition.*

If not implicitly disclosed in D1 it is certainly to the person skilled in the art that processes are only informed about resources assigned to their partition since the knowledge of resources outside their would be useless as the processes are only allowed to access the resources assigned to their partition anyway. If not implicitly disclosed in D1, it is certainly obvious to provide processes with information on the resources in order to guide them in making proper requests.

Hence, the subject-matter of claim 11 does not involve an inventive step.

4.3 The subject-matter of apparatus claims 18 and 23 does not involve an inventive step. The objections made to corresponding method claims 6 and 11 apply mutatis mutandis to said apparatus claims.

5 With respect to the letter of reply dated 08.01.2007.

5.1 Re 2, 2.1, 2.2 and 2.4. The applicant argues that the partitioning in D1 is performed at a different level than the partitioning in the application as filed. In particular is the partitioning in the application dealt with 'above' the level of the kernel. Hence, in the application as filed multiple partitions are supported by a single operating system kernel, whereas in D1 each partition has its own kernel.

However, it is pointed out that the exact functionality of the kernel is not defined. The only functionality defined is the functionality that takes care of the enforcement of the zones. This functionality is suitably located between the hardware and the other operating system / kernel / user functionality. This is the same for the application and document D1. In particular does D1 disclose that the hypervisor shares the level of the kernel (D1, §0034, "PLIC" & §0037, "the primary partition contains a special portion of hypervisor code which shares the level of OS kernel"). Hence, it is save to say that the hypervisor code is part of the (common part of the) kernel.

Hence, the novelty objection is maintained.

5.2 Re 2.3: The amendment is not allowable under Article 123(2) EPC see §2 of this summons. Moreover, it is pointed out that the partitioning in D1 is enforced by the operating system environment as the hypervisor is considered part of the operating system environment.

5.3 It is believed that all the points of the letter of reply have been addressed.

6 It is not at present apparent which part of the application could serve as a basis for a new, allowable claim. Refusal of the application (Article 97(2) EPC) is therefore to be expected. Should the applicant nevertheless regard some particular matter as patentable, an independent claim could be submitted taking account of i.a. Rule 43 EPC.

7 In case the applicant intends to submit a new set of claims the following should be taken into consideration:

7.1 The applicants attention is drawn to Rule 137(3) EPC with respect to any submission.

7.2 The applicant should also indicate:
   (I) the difference of the subject-matter of any new claim vis-à-vis the state of the art (D1) and the technical significance thereof,
   (ii) the technical problem solved by this difference,

(iii) how this technical problem is solved in a non-obvious manner by the features of all independent claims.

7.3 When submitting amended claims the applicant should at the same time bring the description into conformity with the amended claims. Care should be taken during revision as the application may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed (Article 123(2) EPC).

7.4 In order to facilitate the examination of the conformity of the amended application with requirements of Article 123(2) EPC, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based.

These indications should be submitted in a marked-up copy of the relevant parts of the application as filed.

8 An appealable decision on the file as it stands may be requested. Such a decision is given in standard form, referring to the previous communications including objections to which the applicant has had opportunity to comment and to the request, which must be made in writing (see Guidelines C-VI, 4.5 and E-X, 4.4).

Marc Dieben
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Benjamin Cohen
Chairman

Piotr Wierzejewski
Second member